Amendments to the Claims

Please cancel Claims 1-26. Please add new Claims 27-59. The Claim Listing below will replace all prior versions of the claims in the application:

Claim Listing

1-26. (Canceled)

27. (New) A power converter system comprising:

a DC power source;

a non-regulating isolation stage comprising:

a primary transformer winding circuit having at least one primary winding connected to the source; and

a secondary transformer winding circuit having at least one secondary winding coupled to the at least one primary winding and having plural controlled rectifiers, each having a parallel uncontrolled rectifier and each connected to a secondary winding, each controlled rectifier being turned on and off in synchronization with the voltage waveform across a primary winding to provide an output, each primary winding having a voltage waveform with a fixed duty cycle and transition times which are short relative to the on-state and off-state times of the controlled rectifiers; and

a plurality of non-isolating regulation stages, each receiving the output of the isolation stage and regulating a regulation stage output while the fixed duty cycle of the isolation stage is maintained.

28. (New) A power converter system as claimed in claim 27 wherein the regulation stages are switching regulators.

29. (New) A power converter system as claimed in claim 28 wherein the regulation stages are down converters.

30. (New) A power converter system as claimed in claim 28 wherein a switch in the switching regulator is a controlled rectifier.

31. (New) A power converter system as claimed in claim 27 wherein the first and second controlled rectifiers are voltage controlled field effect transistors.

32. (New) A power converter system as claimed in claim 27 wherein the DC power source has a voltage-fed output characteristic.

33. (New) A power converter system as claimed in claim 32 wherein the voltage fed output characteristic of the DC power source is provided by a capacitor.

34. (New) A power converter system as claimed in claim 27 wherein the signal controlling a controlled rectifier is provided by a transformer winding.

35. (New) A power converter system as claimed in claim 27 wherein the output of the isolation stage is about 12 volts.

36. (New) A power converter system as claimed in claim 35 wherein the regulation stage output is of a voltage level to drive logic circuitry.

37. (New) A power converter system as claimed in claim 27 wherein energy is nearly losslessly delivered to and recovered from capacitors associated with the controlled rectifiers.

38. (New) A power converter system as claimed in claim 27 wherein each controlled rectifier is turned on and off by a signal applied to a control terminal relative to a reference terminal of the controlled rectifier and the reference terminals of the controlled rectifiers are connected to a common node.

39. (New) A power converter system as claimed in claim 27 wherein the isolation stage is a step down stage.

40. (New) A power converter system as claimed in claim 27 wherein the regulation stage output is of a voltage level to drive logic circuitry.

41. (New) A power converter system as claimed in claim 40 wherein the regulation stage output is about 5 volts or less.

42. (New) A power converter system as claimed in claim 40 wherein the regulation stage output is about 3.3 volts.

43. (New) A power converter system as claimed in claim 27 wherein the DC power source provides a voltage that varies over the range of 36 to 75 volts.

44. (New) A power converter system as claimed in claim 27 wherein the DC power source provides a voltage within the range of 36 to 75 volts.

45. (New) A power converter system as claimed in claim 44 wherein the regulation stage output is of a voltage level to drive logic circuitry.

46. (New) A power converter system comprising:

a DC power source;

a non-regulating isolation stage comprising:

a primary transformer winding circuit having at least one primary winding connected to the source; and

a secondary transformer winding circuit having at least one secondary winding coupled to the at least one primary winding and having plural controlled rectifiers, each having a parallel uncontrolled rectifier and each connected to a secondary

winding, each controlled rectifier being turned on and off in synchronization with the voltage waveform across a primary winding to provide an output,; and

a plurality of non-isolating regulation stages, each receiving the output of the isolation stage and regulating a regulation stage output.

47. (New) A power converter system as claimed in claim 46 wherein the regulation stages are down converters.

48. (New) A power converter system as claimed in claim 46 wherein the signal controlling a controlled rectifier is provided by a transformer winding.

49. (New) A power converter system as claimed in claim 46 wherein the isolation stage is a step down stage.

50. (New) A power converter system as claimed in claim 46 wherein the DC power source provides a voltage within the range of 36 to 75 volts.

51. (New) A power converter system as claimed in claim 46 wherein the output of the isolation stage is about 12 volts.

52. (New) A power converter system as claimed in claim 51 wherein a regulation stage output is of a voltage level to drive logic circuitry.

53. (New) A power converter system comprising:

a DC power source;

an isolation stage comprising:

a primary transformer winding circuit having at least one primary winding connected to the source; and

a secondary transformer winding circuit having at least one secondary

winding coupled to the at least one primary winding; and plural controlled rectifiers, each having a parallel uncontrolled rectifier and each connected to a secondary winding, each controlled rectifier being turned on and off in synchronization with the voltage waveform across a primary winding to provide an output voltage whose value drops with increasing current flow through the isolation stage; and

a plurality of non-isolating regulation stages, each receiving the output of the isolation stage and regulating a regulation stage output.

54. (New) A power converter system as claimed in claim 53 wherein each primary winding has a voltage waveform with a fixed duty cycle and transition times which are short relative to the on-state and off-state times of the controlled rectifiers.

55. (New) A power converter system as claimed in claim 53 wherein the isolation stage is non-regulating.

56. (New) A method of providing multiple DC outputs comprising:

from a DC power source providing an isolated output without regulation by applying power through at least one primary winding connected to the source and at least one secondary winding coupled to the at least one primary winding, the at least one secondary winding being in a secondary transformer winding circuit having plural controlled rectifiers, each having a parallel uncontrolled rectifier and each connected to a secondary winding, each controlled rectifier being turned on and off in synchronization with the voltage waveform across a primary winding to provide an isolated output; and

from the isolated output, providing plural regulated outputs without further isolation.

57. (New) A method as claimed in claim 56 wherein each primary winding has a voltage waveform with a fixed duty cycle and transition times which are short relative to the on-state and off-state times of the controlled rectifiers.

58. (New) A method as claimed in claim 56 wherein the isolated output is a voltage whose value drops with increasing current flow.

59. (New) A method of providing multiple DC outputs comprising:

from a DC power source providing an isolated output by applying power through at least one primary winding connected to the source and at least one secondary winding coupled to the at least one primary winding, the at least one secondary winding being in a secondary transformer winding circuit having plural controlled rectifiers, each having a parallel uncontrolled rectifier and each connected to a secondary winding, each controlled rectifier being turned on and off in synchronization with the voltage waveform across a primary winding to provide an isolated output, the isolated output being a voltage whose value drops with increasing current flow; and

from the isolated output, providing plural regulated outputs without further isolation.